

Clean Version Of The Pending Claims In The Case

- 1 8. (New) A method for etching a silicon wafer using XeF_2 , comprising steps of:
- 2 (a) etching a silicon wafer using an etching apparatus comprising a loading chamber for
- 3 loading XeF_2 , an expansion chamber for collecting sublimated XeF_2 from the said
- 4 loading chamber, and an etching chamber for etching using XeF_2 supplied from the
- 5 said expansion chamber; and
- 6 (b) eliminating air moisture in each chamber by injecting nitrogen to the loading
- 7 chamber, the expansion chamber or the etching chamber, and exhausting the injected
- 8 nitrogen therefrom prior to the said step (a).
- 1 9. (New) The method for etching a silicon wafer using XeF_2 as claimed in claim 8, wherein the
- 2 XeF_2 gas is injected on the surface of the wafer with a viscous laminar downflow using an
- 3 injector having a predefined shape provided in the etching chamber for uniform etching of
- 4 the wafer in step (a).
- 1 10. (New) The method for etching a silicon wafer using XeF_2 as claimed in claim 8, further
- 2 including a step c) of controlling internal pressure of the loading chamber at a level between
- 3 sublimation pressure of XeF_2 and atmospheric pressure to prevent sublimation of the residual
- 4 XeF_2 in the loading chamber after the said step (a).
- 1 11. (New) The method for etching a silicon wafer using XeF_2 as claimed in claim 8, including
- 2 weighing the residual XeF_2 gas in the loading chamber at any time during the step (a) to
- 3 estimate the remaining time for performing the etching step with the residual XeF_2 .

1 12. (New) A method for etching a silicon wafer using XeF_2 , which method comprises:

- 2 (a) eliminating air moisture in a loading chamber, an expansion chamber, and an etching
3 chamber by injecting nitrogen to the loading chamber, the expansion chamber or the
4 etching chamber and exhausting the injected nitrogen therefrom; and
5 (b) thereafter loading XeF_2 in said loading chamber;
6 (c) collecting sublimated XeF_2 from said loading chamber in said expansion chamber;
7 and
8 (d) etching said silicon wafer in an etching chamber using XeF_2 supplied from said
9 expansion chamber.

1 13. (New) A method for etching as set forth in claim 12 including injecting said XeF_2 gas on a
2 surface of said silicon wafer with a viscous laminar downflow.

1 14. (New) A method for etching as set forth in claim 12 including the additional step of
2 controlling internal pressure of the loading chamber at a level between sublimation pressure
3 of XeF_2 and atmospheric pressure to prevent sublimation of residual XeF_2 in the loading
4 chamber.